IIAS International Institute of Administrative Sciences

Università degli Studi di Bergamo

HEALTHCARE SERVICES AND THE CO-PRODUCTION CHALLENGE: INSIGHTS FOR ENGAGING *UNWILLING* PATIENTS

Maddalena Sorrentino[1]
Dept. of Economics, Management and Quantitative Methods
Centro Interdipartimentale ICONA
Università degli Studi di Milano, Italy
maddalena.sorrentino@unimi.it

Silvia Gilardi
Dept. of Economics, Management and Quantitative Methods
Centro Interdipartimentale ICONA
Università degli Studi di Milano, Italy
silvia.gilardi@unimi.it

Chiara Guglielmetti
Dept. of Economics, Management and Quantitative Methods
Centro Interdipartimentale ICONA
Università degli Studi di Milano, Italy
chiara.guglielmetti@unimi.it

Paper submitted to the Meeting of the IIAS Study Group on

'Coproduction of Public Services'

[1] **Correspondence:** Dept. of Economics, Management and Quantitative Methods - Centro Interdipartimentale ICONA - Via Conservatorio 7 - 20122 Milano, Italy

HEALTHCARE SERVICES AND THE CO-PRODUCTION CHALLENGE: INSIGHTS FOR ENGAGING *UNWILLING* PATIENTS

Maddalena Sorrentino
maddalena.sorrentino@unimi.it

Silvia Gilardi
silvia.gilardi@unimi.it

Chiara Guglielmetti
chiara.guglielmetti@unimi.it

ABSTRACT

The need to reconcile effectiveness with shrinking budgets is pushing contemporary health services to develop co-production practices. But the patient is often an *unwilling client* and patient engagement with both their therapy *and* the relative organizational system remains largely unexplored. The article analyzes an Italian hospital's co-production initiative and uses the results to reflect on what key factors impact the efficacy and the efficiency of healthcare co-production. The empirical evidence indicates that a) the socio-organizational conditions of both the patients and the relevant actors must be taken into account to achieve the truly meaningful engagement of the patient, as opposed to merely symbolic acceptance in co-production practices, as opposed to just their symbolic acceptance; b) no divide exists between organizational production and client co-production, rather, it is a relationship of interdependence that in turn raises critical issues; and c) to take a significant step forward in our understanding of co-production and its managerial challenges we must perforce combine the use of public management studies and health psychology studies.

Keywords: healthcare management, patient engagement, chronic illness, participatory research, organizational change

INTRODUCTION

Coproduction occurs when governments partner with nongovernmental entities, including members of the public, to jointly produce services that governments previously produced on their own (Thomas, 2013). This issue is related to the public governance discourse that emphasises networks, partnerships and voluntary cooperation, moving beyond the polar models of State and market, public vs. business.

The calls to make private contractors, non-profit organizations and volunteers the suppliers of services are underpinned by four key rationales or anticipated outcomes: advantages of scale, scope, supervision and learning (Entwistle, 2010, p. 162). Despite the often mixed evidence for these outcomes, the overall consensus is that individuals can be a reliable resource in many public sector areas and that each can contribute to the achievement of public purposes (Gash, Randall, & Sims, 2014; Thomas, 2013).

Co-production has especially raised the interest of healthcare providers. In the developed countries the longer lifespan of an ageing population equates to a higher number of chronic diseases, increasing the need for long-term care facilities (Coyte, Laporte, Goodwin, & Organization, 2008) and, hence, more expensive healthcare services. This forces the public health providers to seek innovative organizational ways to manage the new needs that are emerging (Lega & Calciolari, 2012; OECD, 2011)

The health systems have thus brought to light new rationales (Ewert & Evers, 2014, p. 430) even though the evidence that demonstrates a clear link between co-production and greater benefits for those involved is weak at best (Verschuere, Brandsen, & Pestoff, 2012, p. 1099).

The extent to which co-production can be adopted and implemented depends on recognizing and dealing with a string of diverse factors. Up to now cost-savings, technical feasibility and strategies for encouraging the recalcitrant citizens to 'get on board' (Pollitt, 2012, p. 195) have dominated the debate. While recognizing the important light shed by the research programs that have investigated these issues, the paper argues that it is now time to move beyond the short-term perspective and the mono-disciplinary approach that has so far dominated the mainstream literature.

The paper's basic argument is that co-production, being the crossroad of several academic disciplines (Verschuere et al., 2012), must be addressed using a transversal approach that enables us to capture both the social and the organizational aspects. Unlike the buyer-seller relationship, co-production in the public sector implies a social exchange "in which the client 'pays' not with money but with behaviours" (Alford & O'Flynn, 2012, pp. 178, original emphasis).

Consider, for example, the decisional processes that a healthcare organization (HCO) needs to embark on when it has to design and set up a home treatment plan for chronically ill patients. This kind of choice has a potential impact not only on the clinical, but also on the social, economic, organizational and other spheres, affecting all kinds of individuals and groups: from the clinicians and internal staff to the patients and caregivers. Orchestrating resources in a task environment subject to multiple strategic change initiatives (Kash, Spaulding, Johnson, & Gamm, 2014) and host to many actors poses significant challenges for the HCO administrators. Above all, the eliciting of the expected behaviours from those who "co-produce value for the public" (Alford & O'Flynn, 2012). But how should a public provider respond when the beneficiary (e.g., a chronically ill patient) is not fully committed, i.e., when they behave like an "unwilling client" (ibidem, p. 177)?

The aim of the article is to guide senior managers in identifying the *socio-organizational* conditions that transform chronically ill patients from passive public-service recipients into engaged co-producers. Amalgamating the public management and the health psychology literatures and drawing on a qualitative case study conducted at a major Italian public hospital in collaboration with the patients, their association and the healthcare team, the article identifies what key factors influence the adoption and implementation of healthcare co-production initiatives. The paper focuses on a specific process known as Outpatient Parenteral Antimicrobial Therapy ('OPAT'), which is the self-administration at home of intravenous antibiotic therapy by the patients themselves instead of undergoing the treatment with a circa 15-day stay in hospital, where it is usually carried out.

Specifically, the paper posits the following questions:

1. *How do the organizational coordination and control processes change after the therapeutic practices traditionally requiring hospitalization cross the hospital's boundaries to the outside?*
2. *What approaches and work methods stimulate the active, ongoing participation of the relevant actors, i.e., what pushes them beyond the mere rite of participation?*

The first thing to emerge from the analysis is that failure to take account of the socio-organizational conditions of the patients and of the professional assumptions and values of the other relevant actors puts the entire engagement endeavour at risk, making it deceptively apparent and, hence, less efficacious. Second, there is no divide between organizational production and client co-production; rather, the activities (or activity segments) are redistributed among those who provide the care, i.e., the caregivers, and those who receive the care, i.e., the caretakers; which increases the managerial coordination and control effort. Third, the study shows that if we combine the use of public management studies and healthcare psychology studies we can take a significant step forward in our understanding of co-production and its managerial challenges.

The article contributes to the health services co-production literature in two specific ways:

- it underlines the conceptual convergence of engagement and co-production;
- it demonstrates the potential advantages of a participated analysis of work practices, exploring the ambivalences that might arise when a practice is effectively incorporated in the work process (becoming a practice-in-use).

And offers the following insights for practitioners:

- give careful consideration to the decisions associated with home therapy;
- expand the participative approach to include the pre-adoption phase of the co-production initiative;
- carefully monitor the post-implementation costs of coordinating co-production practices.

CO-PRODUCTION AND ENGAGEMENT

Co-production is central to debates about public service provision in times of austerity not just because chronic diseases are a huge burden on healthcare expenditure (Rajan, Seidmann, & Dorsey, 2013), but above all because the bill for the services delivered by any kind of healthcare system is always paid by the consumer (through taxation, national insurance contributions, insurance premiums or privately).

Co-production refers to a fragmented set of activities, expectations, and rationales (Ewert & Evers, 2014, p. 427). Unlike *co-governance*, which refers to organisations that help in the planning and design of public services, and *co-management*, which relates to the production of the service by a third sector organization in conjunction with the state (Brandsen & Pestoff, 2006), co-production is restricted to user involvement in the production of public services directly, with or without state intervention.

The growing body of research that integrates the concept of co-production with policy, organizational and managerial concepts shows that scholars from diverse disciplines are beginning to embrace co-production as a useful conceptual framework for the study of public services (Schlappa & Imani, 2012).

Scholars of business administration see extensive co-production as essential because customers must join in "customizing" many products and services (Thomas, 2013). In some cases 'client co-production is a *substitute* for production by internal staff' (Alford & O'Flynn, 2012, p. 178, emphasis in the original): 'The issue for managers in these situation is whether the organization or the client will better perform the task. To inform these decisions, managers weigh up the relative cost-effectiveness of the two options, something akin to decisions about whether to contract public services out' (Alford & O'Flynn, 2012). In other cases, co-production is *additive,* i.e., it adds 'user and/or community inputs to professional inputs or introduces professional support to previous individual self-help or community self-organizing' (Brandsen & Pestoff, 2006, p. 1123).

Co-production has been the focus of several cost-effectiveness and benefit analyses. The main rationales or anticipated outcomes of co-production are reduced costs and better outcome (Alford & O'Flynn, 2012, p. 179). For instance, a study of a training plan for 80,000 patients with long-term needs led Alford and O'Flynn to attribute the economic benefits to the reduced visits to GPs (7%), and fewer visits to Accident and Emergency (16%) reaping savings of between £27 and £58 per consultation avoided. Further, some patients reduced their hospital visits by half and reported significantly lower severity of symptoms following completion of the course.

Collaborative co-production challenges the usual relationship between professionals and service users. It requires the latter to be considered experts in their own circumstances and therefore capable of making decisions and having control as responsible citizens (Boyle & Clarke Sand Burns, 2006). But co-production also implies a change in the role of the professionals from fixers of problems to facilitators who find solutions by working with their clients. This approach promotes the importance of front-line staff to the delivery of a service (Needham & Carr, 2009).

There is general recognition that setting up co-productive relationships may have positive implications in health circumstances (Realpe & Wallace, 2010) and the term 'engagement' has now been widely adopted by the academic literature that studies the involvement of individual citizens and groups in co-production practices in healthcare settings. In particular, engagement in chronic care services can be defined as a process of commitment that in which the individual *actively participates* in managing their own healthcare program (Coulter, 2011, our emphasis; 2012). A concept that, as we can see, is very close to today's idea of co-production even though it was incepted by different disciplinary parents (medicine and health psychology) and, indeed, ten years or so before its adoption in healthcare settings.

The term *self-management* was introduced by the medical literature in the 1960s to indicate the active participation and engagement of the patients and refers to the ability to carry out specific medical tasks autonomously (such as following a diet, using an inhaler, etc.).

For many years the studies of the chronically ill patient-turned-own-caregiver interpreted engagement mainly as the sum of the whole of the abilities and behaviours needed to manage one's own illness. For example, Gruman and colleagues (Gruman et al., 2010) have identified two settings of *engaged* patient actions, one related to the management of their conditions of illness (such as staying informed, monitoring certain health indicators, dealing with stress and the disease's emotional consequences); the other related to the management of relations with the healthcare professionals (e.g., asking for explanations, communicating needs clearly, weighing up of treatment choices). In this sense, the strategies adopted to strengthen patient engagement aim to improve the person's knowledge and skills through self-management training courses. The United States' *Chronic Disease Self-Management Program* and the UK's *Expert Patients Programme* are two examples of this approach.

Despite the evidence of the positive results achieved by these interventions (Brady et al., 2013), there are limitations. First, this exclusively patient-centric approach is not enough to engage the most seriously ill patients who come from the lower socio-economic strata or have low levels of healthcare literacy (Greenhalgh, 2009; Wilson, Kendall, & Brooks, 2007), ignoring not only the equity criteria, but also the fact that the desire and the ability of patients to engage with the healthcare professionals changes substantially, with behaviour that goes from full partnership to total deference. Second, the patient-centric approach seems unaware that many healthcare systems are not designed to foster engagement; indeed, some are even designed to actually discourage it. Fragmentation of services, restrictive policies and procedures can hinder patient and family involvement and can reduce access to personal health information (Edgman-Levitan & Brady, 2013). Third, it disregards the potentially negative influence of the relational dynamics between healthcare staff and patients. For example, patients may initially be encouraged to ask the health professionals questions but are unlikely to repeat this behaviour if feedback is negative. Another matter is the mystic language that the professionals who fail to consult their patients for relevant inputs tend to use when writing educational materials, which leads the patients to dismiss them as useless or confusing instead of helpful.

Other studies have since shifted the focus from the individual patient as the unit of analysis to the *system* of healthcare. As claimed in a recent report (Edgman-Levitan & Brady, 2013, p. 10) "engagement is a mutual relationship": both the healthcare staff and the patient are co-responsible in building and managing programmes that maximize health.

Seen from this angle, the focus of the clinical pathway switches from self-management to *collaborative management*. The patient is considered a full system partner, embracing the idea that the collaboration fostered between the patients, their families and the healthcare professionals is indispensable to effective engagement because it is precisely this collaboration that supports and strengthens the patient's own responsibility and future self-management behaviours. Certain empirical evidence supports the advantages of switching to an engagement approach such as co-production as opposed to a one-sided intervention to change patient behaviour. Epping-Jordan et al (2004), for example, show that sporadic or short-term self-management plans issued outside daily clinical practice failed to produce long-term benefits, although positive outcomes were recorded when such plans were integrated into routine clinical actions (Glasgow et al., 2002; Harris, Williams, Denni, Zwar, & Powel Davies, 2008; Norris, Lau, Smith, Schmid, & Engelgau, 2002).

A key factor in making patient self-management an integrated part of clinical practice is the design of clinical pathways that simultaneously increase the desire and skills of both the patients and their families and the healthcare professionals and management (Edgman-Levitan & Brady, 2013). Clearly there is no one best way to organize for co-production. What is certain, though, is that the challenges cross many levels and that these must all be addressed.

A major challenge at the micro-level is to engage the patient in the co-production process in a cost-effective way, defining engagement as an ongoing process in which the patient (along with their family and the various caregivers) actively participates in their healthcare plan (Coulter, Parsons, & Askham, 2008). Engagement is crucial in cases of lifelong chronic illness but cannot be taken for granted, given that the patients "compelled to 'receive' the service provided" often show limited commitment, indeed, are *unwilling clients* (Alford & O'Flynn, 2012, p. 177; Bovaird & Loeffler, 2012; Thompson, 2007). At the meso-level, the challenge is to manage the interdependency between organizational production and client co-production (Alford & O'Flynn, 2012, p. 182) to ensure the patient engages with both their therapy and the responsible organizational system. This intermediate level is where the expert patient organization can play a decisive role as the interface between the individual patients and the healthcare system so that the former can 'get what they are entitled to but also make the best possible choices' (Ewert & Evers, 2014, p. 428). Finally, at the macro-level, a significant challenge for management practice is to align the autonomous choices with the healthcare offer and to manage the available resources in line with the broad policy objectives established for the adjacent sectors (e.g., social services) and other government levels.

THE CASE STUDY

In Italy, Intravenous Antibiotic Therapy (IAT) is generally administered to adult sufferers of cystic fibrosis as hospital inpatients. The case study analyzed in the paper is a co-production initiative that aims to enable the patient to undergo their IAT at home instead of in the hospital.

The need to reduce hospital admissions on the client side and the increasing scarcity of hospital beds on the organizational side are the two drivers of the co-production initiative launched by the hospital's Centro di Bioetica (Bioethics Centre), which calls for the clinical staff, the patients and the hospital's healthcare management to design a home therapy pathway according to a joint decision-making logic that involves all the relevant actors and that promotes organizational simplification.

According to the typology of Bovaird (2007), the participative methodology used in the design phase (see "Method") denotes the co-production case study as an example of "user-community sole delivery of coplanned or co-designed services", i.e., the patients, represented by the expert patients association, working alongside the healthcare professionals are fully involved in most aspects of the service design and planning of the service, which is then self-administered by the eligible patient. In fact, the patients are engaged in a two-phase action of co-production: the first phase of action is the design which calls for the patients of the Cystic Fibrosis Expert Patient Association to co-produce the informative training course that precedes the second action of co-production implementation, i.e., when the inpatient makes the switch from hospital-administered therapy to self-managed home therapy.

THE ORGANIZATIONAL CONTEXT

The Cystic Fibrosis Centre (CFC) is located in the Pulmonary Ward of one hospital. The research was conducted in 2009 when the CFC was attended by 180 adult (18 years and older) patients. The CFC had one day-hospital bed (open weekdays), two consulting beds and six inpatient beds. The emergency telephone service is staffed 24/7 by the shift doctors. The CFC team consists of two physicians, one day nurse, two physiotherapists, one dietician and one social worker.

CO-PRODUCTION WORK PRACTICE

Cystic fibrosis (CF) is an inherited disease that affects different organs caused by a frameshift mutation in the gene for the protein cystic fibrosis transmembrane conductance regulator (CFTR), which is required to regulate the components of sweat, digestive fluids, and mucus. In particular, the build-up of thick, sticky mucus in the lungs, which is hard to expel via coughing, blocks the airways and makes it easy for bacteria to grow. This leads to repeated, serious lung infections and, over time, severe lung damage.

No etiological treatment has yet been found for cystic fibrosis, which means that any deterioration in the CF patient's pulmonary or infective condition is treated with a course of antibiotics. In the case of a serious worsening, the failure of the oral therapy or the body's resistance to the oral antibiotics, the patient is prescribed intensive Intravenous Antibiotic Therapy that must be administered, on average, over a 15-day period.

Outpatient Parenteral Antibiotic Therapy (OPAT) was introduced in the United States in the early 1970s for patients who require parenteral therapy but are well enough not to require hospitalization. Regarded as a standard of care in North America, where the main driver has been financial, the UK has only recently seen a considerable expansion of services (Chapman et al., 2009) and now considers it a highly clinically efficient, cost-effective and safe alternative to inpatient care where parenteral therapy is deemed necessary (Chapman, 2013).

In Italy, OPAT is far from widespread, especially in paediatric healthcare. In fact, the current standard for treating adult CF patients in Italy calls for the hospital to give them an approximately 15-day course of intravenous antibiotics as inpatients. Hospitalization is considered a better clinical approach because it allows the healthcare professionals to continually monitor, repair and maintain vein access, to evaluate the treatment's efficacy, to plan diagnostic tests to help frame the patient's clinical condition, to optimize the respiratory physiotherapy programme essential to clinical success, to keep complications in check and monitor any side effects, and to counter possible adverse reactions.

At the time the research was conducted (2009), the CFC data showed that more than 50% of the patients receiving CFC treatment needed at least one course of IAT per year. Of these, around 1 in 5 administers at least one course at home.

The CFC's OPAT process – reconstructed through HFMEA (see 'Method') – usually commences when the patient asks to complete their antibiotic treatment at home. The healthcare team assesses the patient's request to ensure that their clinical conditions are appropriate (mainly clinical conditions of average seriousness, absence of adverse reactions to the antibiotics). In addition, the physician and the social worker assess the adequacy and conditions of hygiene at the patient's home and that this latter has one or more

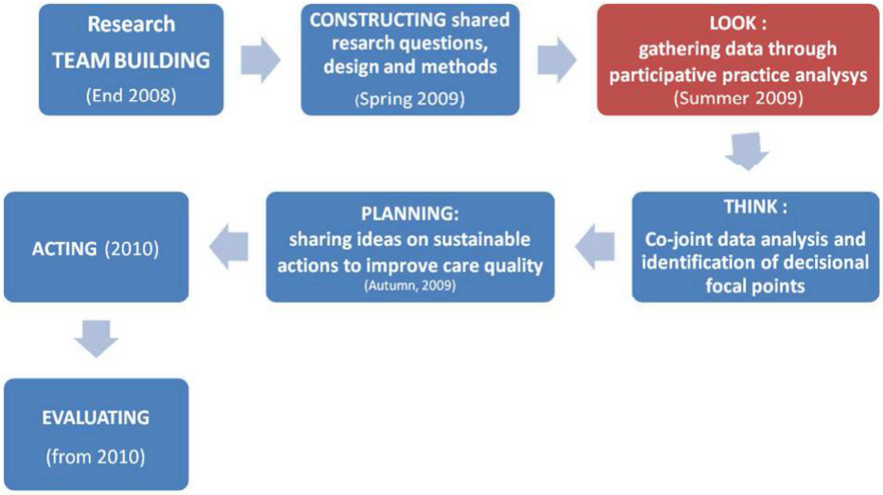
caregivers to ensure continuous 24-hour monitoring over the entire period. Patients that meet these criteria then undergo a self-management therapy training course that enables them to take over from the nurses. Once the patient has proved capable of self-managing the OPAT and the drugs needed for the treatment have been sourced, the patient is discharged from hospital. It takes roughly 4-5 days to verify that the patient meets the criteria and to give them the relevant training, during which the patient stays in hospital and receives the first courses of OPAT.

METHOD

The study was carried out from the end of 2008 to 2010 and had the aim of evaluating and redesigning the clinical pathway of this chronic illness in order to actively involve the patients in the self-management of a specific therapy (Intravenous Antibiotic Therapy or 'IAT').

The research adopted the co-operative inquiry approach (Heron & Reason, 2001) that identifies the group of different stakeholders as the main vehicle of knowledge advancement and change agent. The hospital's Bioethics Centre decided to form a research group made up of CFC healthcare professionals (physicians, nurses, psychologist, social worker), representatives of the local Expert Patient Association (the chairman with, on rotation, another four patients) and two academic researchers (the second and third co-authors of this article). The hospital's healthcare management formally adhered to the research group but did not attend the meetings. Figure 1, below, outlines the research path.

Fig. 1. Research Path



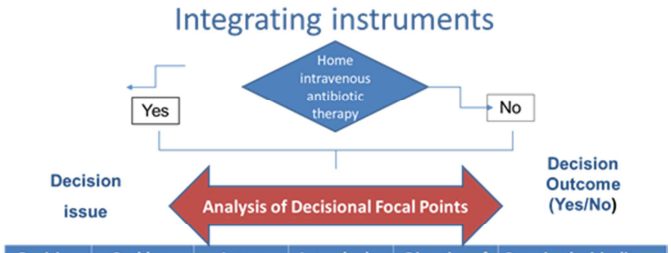
The research group was tasked with analyzing the work practices, exchanging experiences and observations, generating knowledge and deciding/verifying the actions needed to implement IAT. Work practices were analyzed through a revised version of proactive analysis (HFMEA, Health Care Failure Modes and Effects Analysis; (DeRosier, Stalhandske, Bagian, & Nudell, 2002) and the Analysis of Decision Nodes of the clinical pathway, applied in the context of focus groups of mixed composition (physicians, nurses, psychologist, social worker, expert patients, and two researchers of the hospital's Bioethics unit).

The HFMEA, reflecting the standard issued by the Joint Commission in 2001, enables the reconstruction of the flow of actions implemented during a therapy practice from the time of first contact through completion; identification of the potential weaknesses; measurement of the risks of error; and the sharing of

priority objectives of intervention to improve patient safety. The method's principle output is worksheets, i.e., the graphic illustration of the action flow. The psychosocial analysis of the decisional nodes started with the reconstruction of the different ways to administer the IAT process (in hospital or at home). The analysis of the flow and its product (graphic illustration), in fact, produced a description of the outcomes of the decisional steps in dichotomous terms (yes/no), although the decisional process remained pretty much a *black box*.

The analysis of the decisional nodes focus group mainly oriented the discussion to the expectations, emotions and thoughts inherent in the decisions related to managing the therapy; the tacit assumptions that motivated the exchanges and the distribution of the power between the actors; and the sharing of the spaces accorded to and by the patients. The aim of focusing on the decisional processes was to understand how each component interpreted the role of the patients in actively managing IAT, both in hospital and at home. The participants were asked to indicate what key issues required a decision and what were the most emotionally challenging and demanding. Each decision was then investigated to understand: i) the representations of the problem that they believed required a decision; ii) what options each actor had in mind to choose from; iii) who was given the decisional power; and iv) the doubts, difficulties and hurdles, if any, encountered in reaching that decision. Figure 2, below, shows an example of decision as represented in the flow chart (top half of Figure 2) and the areas investigated to open the black box of the decision.

Fig. 2. Psychosocial analysis of decisional steps: Example



Decision Issue	Problem	Actors	Actors' roles	Direction of information flow	Perceived criticality
Whether to allow home intravenous antibiotic therapy	Which are the inclusion/exclusion criteria?	Clinicians Nurses Social worker Patient Family	Reciprocal expectations about what each members does and why	Only from clinicians to patient	• Inclusion/exclusion criteria are unknown to patients • criteria are intentionally hidden by the clinicians

The focus group discussions were recorded and then transcribed; the transcriptions were read and analyzed thematically in their entirety by two independent researchers (Duggleby, 2005). The reports ensuing from each phase of the clinical practice identify the questions perceived as characterizing, the actors involved in the problem, their representations of the problem and any divergences, and how the decision was reached. The reports and data produced by the analysis were shared with the members of the focus group to test the data's reliability and the suggested interpretations.

FINDINGS

Two main issues impact our analysis. First, the relevant actors usually have conflicting motives or goals. At least three main groups - the healthcare staff, the hospital administrators and, naturally, the patients – need to agree to and support the home care arrangements for conditions that traditionally require hospitalization. But these stakeholders have different interests, are not internally cohesive and have differing priorities and values, all of which hamper the process of obtaining the necessary support. Equally important, these groups have considerable power and could use it to block or undermine initiatives they dislike, a factor that should not be underestimated. Second, regardless of any divergence of goals, there is the knotty problem of coordinating the different options available. The people involved must choose a plan of action that is mutually compatible to arrive at an acceptable solution.

The findings of the study can be grouped thematically:

1. Organization change;
2. Process representations; and
3. Implementation.

ORGANIZATION CHANGE

Clinical reasons underpin the organizational decision to temporarily hospitalize IAT patients. In fact, the healthcare operators can better control and directly monitor the treatment and its outcomes when the patient is in hospital. However, OPAT introduces a new technology to the care processes of the CFC patients as an alternative to this general rule.

In a nutshell, the transfer to home therapy implicates: a) disintegrating and fragmenting the various 'vertically integrated' tasks (clinical, care, administrative) of IAT; b) changing the process interdependencies in line with the redistribution of activities among the various stakeholders in and outside the hospital; and c) bringing new actors from different institutional levels into the processes while ensuring continuity of care.

The main steps taken by CFC to launch and monitor home intravenous therapy are:

1. co-assess with the patient that their home is a safe environment in which to self-manage the intravenous antibiotic therapy;
2. inform and train the patient during the patient's hospital stay in how to manage the processes throughout the entire home care period;
3. submit the therapy plan to the competent ASL (Italy's national health service authority) to obtain the necessary drugs and supplies, duly documented in the patient's medical file;
4. activate the ADI (home care service) in those ASL equipped to provide the service;
5. discharge the patient after the required drugs and supplies have been consigned;
6. fix the date for the haematological tests and blood chemistries, clinical and physiotherapy check-ups during the intensive intravenous antibiotic therapy;
7. fix the date for the check-up at the CFC Day Hospital;
8. assess whether the patient needs to be newly admitted to hospital if their condition shows no improvement at the end of the home therapy.

This enables the logics that inform the 'traditional' IAT process and the 'new' OPAT process to live side by side. Patient clinical conditions guide CFC physicians in their decisions of selection, combination and order of application of the technologies. Nevertheless, it is clear that the effect of OPAT increases both the complexity and the uncertainty of the organizational environment.

PROCESS REPRESENTATIONS

The cooperative inquiry approach (Heron & Reason, 2001) underscores that giving the relevant actors decisional responsibility is a key driver of change in work practices. Therefore, the building of a clinical practice must be oriented to the collaborative management of the care with the two relating partners (patient with family on one side and healthcare professionals on the other) sharing the same representation of how things stand, of the ultimate goal, of what can be done and of what decisions to make on actions of change that are sustainable for all the parties involved.

The authors used the Analysis of Decision Nodes focus group method to identify the different representations and to understand how each actor interpreted the active role of the patients in managing OPAT.

From the patient's perspective, the analysis showed that the decision to ask the doctors to prescribe OPAT came after the patient had made a solitary journey of inner reflection (or, at most, after discussing the option with their family). It seems that patients draw on a strong sense of self-selection to feel capable and "serene" before making their request:

> *"I asked myself a bunch of questions before I made the request ... I know that being shut up in hospital ensures better treatment… so, for sure, I wasn't about to submit my request until I really felt up to managing it at home." (CFC patient)*

Home therapy causes the patient to form a representation in which desire mixes with fear to result in ambivalence. On one side, the less intrusive home therapy, and thus the lower impact of the disease itself on the patient's personal and professional life, promotes a better quality of life. On the other, there is the fear of not being capable of successfully managing the home therapy, of not knowing who to call in the non-rare event that the PVC (peripheral venous catheter) slips out of the vein, and of wondering whether the therapy is less efficacious without the level of physiotherapy received in hospital. It emerged that the patients perceived OPAT as less of an opportunity or even a right and more of a "privilege" awarded by the doctors based on clinical criteria that were fairly obscure, even to the most informed and aware patients.

The doctors' decision not to advise the patients of the requisites needed to access the home therapy was a choice based on their fear of further antagonizing the many patients who do not meet those parameters. In fact, it is the risk dimension that prevails in the representation of the physicians:

> *"Even after they've had tens of courses of the same drug, the therapy is still a potential source of risk [adverse reactions] but we still let them manage it at home". (CFC physician)*

The doctors see several risks, and on both sides. The patient is at risk because they may not be able to deal with the albeit rare possibility of an adverse reaction if they are at home; they may have PVC problems and be unable to get immediate help from either their GP or the home nurse; and, out of sight of the physicians,

they may decide to reduce the doses and duration of the therapy. The risk for the physician is related to self and the professional responsibility of the prescribing doctor when no procedure has been agreed with the hospital's administrators to legitimize the patient's home therapy.

Hence, OPAT is clearly perceived by the doctors as mainly a 'concession' to the requests of a few, select and reliable patients, while evaluating the home therapy option as an opportunity to free up hospital beds and put these and the department's resources to more efficient use is relegated to the back burner.

Moreover we noticed a divergence in representation based on the mapping of the patient eligibility assessment boundaries. According to the doctors, the final approval for OPAT must perforce include the suitability opinion of the nurse responsible for training the patient and the social worker's assessment of the patient's living conditions. However, the nurses, the social worker and the patients had no idea that the doctors considered such information an integral part of the final decision on eligibility and to authorize continuance of the treatment at home.

The contribution of the different actors involved in the clinical practice to the focus group discussions revealed the different OPAT representations that were then shared with the others, but also highlighted the hard core issue, which was the danger/risk inherent in the home therapy method.

This latter knowledge factor gave the group direction, enabling it to focus on solutions that made OPAT a sustainable practice that found favour with all the relevant actors.

IMPLEMENTATION

Going back over the research phases, we can see that those designated 'Look' and 'Think' were central to finding a common starting point for the planning phase that began in late 2009 and preceded the definition in 2010 of the implementation phase.

The point of departure was, in fact, the realization of the need to develop a risk management strategy for OPAT. This set the research group to work on producing a series of organizationally sustainable artefacts that covered the needs of all the stakeholders.

Above all, under the supervision of the hospital's bioethics centre, the doctors and patients co-designed an 'informed consent form' that covered both the patient's need to be fully informed of the risks in plain, simple language and the physicians' need to place certain limits on the extent of their responsibility in the event of patient harm. The informed consent form is the only document produced by the research group recognized by the hospital's quality system.

In addition, the doctors and patients co-designed a patient information sheet that set out clearly the clinical criteria used by the healthcare professionals to assess the patient's eligibility for OPAT. This document was not only highly desired by the patients, but also gave the doctors a way to reduce potential conflicts and better deal with the non-eligible patients.

Under the doctors' supervision, the nurses and patients then co-designed two further documents: a nurse's vade mecum defining the therapy training plan; and the patient's therapy training check list. This latter describes the sequence of actions for correctly administering the therapy (preparation of the materials and work spaces, dilution of the pharmaceuticals, etc.) and identifies the phases in which the patient becomes

progressively autonomous over the arc of 4-5 days. These artefacts are the formalization of the training process that up till then had not been shared explicitly between the nurses and that the patient had had to memorize with the help of spontaneous note-taking.

The final step was for the two doctors in charge of CFC to define the OPAT procedure in all its clinical, nursing and training components. Despite the fact that this document is fundamental to the recognition of a CFC clinical practice, however, the hospital has yet to incorporate it into the quality system.

This latter consideration captures a primary need area that has failed to generate a response and that concerns the doctors' request that the hospital administrators formally legitimize OPAT and indemnify them from the potential risk of patient harm. At the time of this writing, the informed consent form was the only formalization of OPAT recognized by hospital management.

The monitoring of the home therapy by healthcare professionals and the provision of support in the event of PVC problems is the other highly salient risk domain identified by both doctors and patients alike. This domain calls into play the relationship with the local health services (home care nursing service and GP). The CFC had already prepared specific documentation to provide the GPs and the local health services with information on the therapy underway and the specific conditions of cystic fibrosis patients. Nevertheless, it was still necessary to formalize the as-yet missing and much-desired agreement between the hospital and the local health services needed to develop a generally accepted 'continuity of assistance' protocol for OPAT patients. Given the lack of response from hospital top management, CFC took it on itself to ask its social worker during the implementation phase to send a formal communication for each patient to ASL at the start of OPAT in order to obtain a written document that sanctioned the report submitted.

DISCUSSION

The response to the first research question "*How do the organizational coordination and control processes change after the therapeutic practices traditionally requiring hospitalization cross the hospital's boundaries to the outside?*" needs to take account of two significant aspects: number one, the central role of the engaged patient and, number two, the role of the artefacts.

The case study has shown how replacing hospital therapy with OPAT is a co-production choice that deeply involves the patients and their community: the family becomes a 'care partner' (Edgren, 1998). The highly intense relational context is a direct consequence of the particular conditions of the patients in question. The analysis confirms that no divide exists between HCO production and client co-production; indeed, OPAT redefines at least two levels of critical interdependencies:

- the first, most obvious level is the *content* of the interdependencies, i.e., the ways in which the new activities must be integrated with the current organizational practices. The case study shows that CFC is the one that manages and controls (albeit partially) the connections between the different processes;
- the second is the way in which interdependency is *conceived*. The growth in the number of actors and processes inherent in co-production practices increases the coordination input factor. Hence, the question moves to solutions and tools that enable complexity to be addressed as a *permanent* condition for the caregiver organization. If we accept this logic, then the management responsible for the external service has to ensure a *minimum* level of control between systems that continue to work

according to substantially heterogeneous methods (what CFC does today). On the other hand, a *complete and systematic* management would require a far greater organizational design effort that must necessarily involve top management.

In general terms, to manage interdependencies, the organizations establish routines or rules, schedules and mechanisms of communication. The choice of which of these tools to adopt is dictated by the degree of stability and repetitiveness of the respective situations. However, it is essential that the organizations minimize coordination costs. In the case in question, the research group produced several artefacts but no protocol to ensure inclusion of the local health services' relationship of responsibility. Further, the fact that the same documents have not been incorporated into CFC's quality system means that not only does the research group's work remain *invisible*, but also prevents the solution from becoming a good practice exportable to other care settings that routinely use OPAT; what we can call a missed organizational learning opportunity. In fact, the big hospitals are increasingly putting together multidisciplinary teams that specialize in the training and supervision of patients that need OPAT to treat diverse acute and chronic diseases. For example, Chapman et al. (2009) cite the case of the Sheffield OPAT service, established in 2005, which treats over 300 patients per year, saving over 3000 bed days annually. Moreover, the cost of OPAT amounts to 41% of equivalent inpatient costs for an Infectious Diseases Unit, 47% of equivalent inpatient costs using British national average costs and 61% of inpatient costs using minimum inpatient costs for each diagnosis.

The study, with its focus on the change in organization and actor relations, confirms that the hospital service responsible for the chronically ill patient suffers no loss of control over the therapeutic practices; rather, the ability to control is transformed into something more complex. Completing at home a course of intravenous antibiotic treatment that started at CFC generates both advantages and disadvantages compared with finishing the course of treatment as a hospital inpatient. The advantages are not evenly distributed however, and it is the patient that benefits the most.

As to the second research question *"What approaches and work methods stimulate the active, ongoing participation of the relevant actors, i.e., what pushes them beyond the mere rite of participation?* the response loops back to what we just said on the design of the artefacts.

The case analyzed here had the goal of the sustainable implementation of OPAT and involved the research group in an intense work of co-design. This effort was underpinned by the precise methodology described earlier. All the actors involved in the research group co-produced a number of tools in an effective and timely manner that transformed OPAT into a fairer, more accessible solution with a procedural logic, and a process that was safer for both the patients and the healthcare professionals. However, we cannot but note that the solutions found, albeit efficacious, are limited to CFC's internal field of action and to the actors of the practices in which the research group had a hands-on role. The real missing link is the efficacy of action at the proximal level outside the research group. OPAT with its problems and risks remains a procedure 'invisible' to the hospital management system and, at the more distal level, to the local health services, which continue to shun responsibility for the patient's home care needs.

More surprisingly, though, the analysis has not revealed the existence of any link between the implementation of the new organizational practices and information systems (IS). This latter aspect is truly novel when we consider that: a) participative practices and ICT are usually seen as drivers of efficiency (Clark, Brudney, & Jang, 2013; Meijer, 2012); and b) the expectation that the recentness of the case analyzed would have translated into an intensive use of ICT artefacts (e.g., new software applications and new media)

to support the coordination and control activities of the co-production practices. The possible, partially correlated explanations can be summed up as follows:

1) *the issue is not on the agenda of the hospital's healthcare management*: the new management that took over in 2010 has not yet taken on board this dossier (in fact, the ethics committee has not yet been appointed). The new practice concerns small numbers in terms of CF patients and number of hospital beds;
2) *risk aversion*, i.e., the new management is hesitant to institutionalize OPAT seeing it as high risk;
3) *professional reluctance* of the healthcare professionals to cede status and control (Bovaird & Loeffler, 2012; Kirkpatrick, Bullinger, Lega, & Dent, 2013);
4) *lack of resources* to allocate to new technological investments.

As a result of these factors the 'pilot phase' remains ongoing, even though several years have passed since its launch date.

The solution implemented to support OPAT is only partially effective and is inefficient from the organizational perspective, given that the current prevalent form of coordinating hospital and patients is the (heaviest) process of mutual adjustment. This dictates how CFC deals with emergency situations: for example, if beds are scarce, it transfers the patients to the Pulmonary ward.

CONCLUSION

The design and implementation of sustainable co-production practices poses new challenges for both the healthcare users and the healthcare providers. Co-production implies that the patient's attitude (and that of their family and various caregivers) must be one of active participation in not only their therapy, but also the responsible organizational system. Co-production for the healthcare providers translates into further organizational complexity and additional coordination and control process costs.

Merging two strands of thought on patient participation, i.e., public management studies and health psychology studies, the article attempts to take a snapshot (albeit partial) of just some of these challenges. That CFC has made an incomplete transition to co-production is attested by the empirical evidence, specifically:

- the protocol and the different OPAT risk-management tools developed have not yet seen the light of day or been acknowledged outside the CFC;
- there is only partial coherence between the OPAT processes and CFC's internal organization processes;
- no ICT solutions were implemented to help lighten the load of routine communications between the patient and CFC and between all the external non-hospital players, namely the GPs and the relevant local health authorities (Aziende sanitarie locali or 'ASL).

This state of affairs makes the unwilling clients of the CFC *invisible* to the hospital's top management.

One last but no less important point is that the reader should not infer that the combined use of public management studies and health psychological studies means that only these two disciplines have addressed the co-production issue; rather the choice was dictated by the need to keep the discussion manageable for

reasons of space. Therefore, to further enrich the analysis, future research will need to explore other disciplinary contributions.

REFERENCES

Alford, J., & O'Flynn, J. (2012). *Rethinking Public Service Delivery*. Basingstoke: Palgrave Macmillan.

Bovaird, T. (2007). Beyond engagement and participation: User and community coproduction of public services. *Public Administration Review, 67*(5), 846-860.

Bovaird, T., & Loeffler, E. (2012). From Engagement to Co-production: The Contribution of Users and Communities to Outcomes and Public Value. *Voluntas, 23*(4), 1119-1138. doi: 10.1007/s11266-012-9309-6

Boyle, D., & Clarke Sand Burns, S. (2006). *Aspects of co-production: the implications for work, health and volunteering*. London: New Economics Foundation.

Brady, T. J., Murphy, L., O'Colmain, B. J., Beauchesne, D., Daniels, B., & Greenberg, M. (2013). Brady T.J, Murphy L., O'Colmain B.J., Beauchesne D., Daniels B., Greenberg M., et al. (2013). A meta-analysis of health status, health behaviors, and health care utilization outcomes of the chronic disease self-management program. Preventing Chronic Disease, 10:120112. DOI: 10.5888/pcd10.120112 *Preventing Chronic Disease*. doi: 10.5888/pcd10.120112

Brandsen, T., & Pestoff, V. (2006). Co-production, the third sector and the delivery of public services. *Public Management Review, 8*(4), 493-501.

Chapman, A. L. (2013). Outpatient parenteral antimicrobial therapy. *British Medical Journal*(346), 27-30.

Chapman, A. L., Dixon, S., Andrews, D., Lillie, P. J., Bazaz, R., & Patchett, J. D. (2009). Clinical efficacy and cost-effectiveness of outpatient parenteral antibiotic therapy (OPAT): a UK perspective. *Journal of antimicrobial chemotherapy, 64*(6), 1316-1324.

Clark, B. Y., Brudney, J. L., & Jang, S.-G. (2013). Coproduction of Government Services and the New Information Technology: Investigating the Distributional Biases. *Public Administration Review, 73*(5), 687-701. doi: 10.1111/puar.12092

Coulter, A. (2011). *Engaging patients in healthcare* New York: McGraw-Hill Education.

Coulter, A. (2012). Patient engagement—what works? . *The Journal of Ambulatory Care Management, 35*, 80-89. doi: 10.1097/JAC.0b013e318249e0fd

Coulter, A., Parsons, S., & Askham, J. (2008). *Where are the patients in decision-making about their own care?*

Coyte, P. C., Laporte, A., Goodwin, N., & Organization, W. H. (2008). *How can the settings used to provide care to older people be balanced?* : World Health Organization.

DeRosier, J., Stalhandske, E., Bagian, J. P., & Nudell, T. (2002). Using health care Failure Mode and Effect Analysis: the VA National Center for Patient Safety's prospective risk analysis system. *Joint Commission Journal on Quality and Patient Safety, 28*(5), 248-267.

Duggleby, W. (2005). What about focus group interaction data? *Qualitative Health Research, 15*, 832-840. doi: 10.1177/1049732304273916

Edgman-Levitan, S., & Brady, C. (2013). *Partnering with patients, families, and Communities for health: a global imperative.*

Edgren, L. (1998). Co-production--an approach to cardiac rehabilitation from a service management perspective. *Journal of nursing management, 6*(2), 77-85.

Entwistle, T. (2010). Collaboration. In R. Ashworth, G. Boyne & T. Entwistle (Eds.), *Public Service Improvement. Theories and Evidence* (pp. 162-183). Oxford: Oxford University Press.

Epping-Jordan, J. E., Pruitt, S. D., Bengoa, R., & Wagner, E. H. (2004). Improving the quality of health care for chronic conditions. *Quality & Safety in Health Care, 13*(299-305). doi: doi:10.1136/qshc.2004.010744

Ewert, B., & Evers, A. (2014). An ambiguous concept: on the meanings of co-production for health care users and user organizations? *Voluntas, 25*, 425-442.

Gash, T., Randall, J., & Sims, S. (2014). *Achieving Political Decentralisation. Lessons from 30 years of attempting to devolve political power in the UK* London: Institute for Government.

Glasgow, R. E., Funnell, M. M., Bonomi, M. E., Davis, C., Beckham, V., & E.H, W. (2002). Self-management aspects of the improving chronic illness care breakthrough series: implementation with diabetes and heart failure teams. *Annual Behavioral Medicine, 24*, 80-87.

Greenhalgh, T. (2009). Chronic illness: beyond the expert patient. *British Medical Journal, 338*(7695), 629-631.

Gruman, J., Rovner, M. H., French, M. E., Jeffress, D., Sofaer, S., Shaller, D., & Prager, D. J. (2010). From patient education to patient engagement: Implications for the field of patient education. *Patient education and Counseling, 78*, 350-356. doi: 10.1016/j.pec.2010.02.002

Harris, M. F., Williams, A. M., Denni, S. M., Zwar, N. A., & Powel Davies, G. (2008). Chronic disease self-management: Implementation with and within Australian general practice. *Medical Journal of Australia, 189*, S17–S20

Heron, J., & Reason, P. (2001). The practice of co-operative inquiry. Research with rather than on people. In P. Reason & H. Bradbury (Eds.), *Handbook of Action research: Participative Inquiry* (pp. 179-188). London: Sage.

Kash, B. A., Spaulding, A., Johnson, C. E., & Gamm, L. (2014). Success Factors for Strategic Change Initiatives: A Qualitative Study of Healthcare Administrators' Perspectives. *Journal of Healthcare Management, 59*(1), 65-81.

Kirkpatrick, I., Bullinger, B., Lega, F., & Dent, M. (2013). The Translation of Hospital Management Models in European Health Systems: A Framework for Comparison. *British Journal of Management, 24*, S48-S61. doi: 10.1111/1467-8551.12030

Lega, F., & Calciolari, S. (2012). Coevolution of Patients and Hospitals: How Changing Epidemiology and Technological Advances Create Challenges and Drive Organizational Innovation. *Journal of Healthcare Management, 57*(1), 17-33.

Meijer, A. (2012). Co-production in an Information Age: Individual and Community Engagement Supported by New Media. *Voluntas, 23*(4), 1156-1172. doi: 10.1007/s11266-012-9311-z

Needham, C., & Carr, S. (2009). Co-production: an emerging evidence base for adult social care transformation. *Policing, 8*(11), 1-18.

Norris, S. L., Lau, J., Smith, S. J., Schmid, C. H., & Engelgau, M. M. (2002). Self-management education for adults with type 2 diabetes: a meta-analysis of the effect on glycemic control. *Diabetes Care, 25*(7), 1159-1171. doi: 10.2337/diacare.25.7.1159

OECD. (2011). *Together for Better Public Services: Partnering with Citizens and Civil Society*. Paris: OECD.

Pollitt, C. (2012). *New perspectives on public services. Place and technology*. Oxford: Oxford University Press.

Rajan, B., Seidmann, A., & Dorsey, E. R. (2013). The Competitive Business Impact of Using Telemedicine for the Treatment of Patients with Chronic Conditions. *Journal of Management Information Systems, 30*(2), 127-158.

Realpe, A., & Wallace, L. A. (2010). What is co-production? London: The Health Foundation.

Schlappa, H., & Imani, Y. (2012). *Leadership and Structure in the Co-production of Public Services*. Paper presented at the British Academy of Management, 11–13 September 2012.

Thomas, J. C. (2013). Citizen, Customer, Partner: Rethinking the Place of the Public in Public Management. *Public Administration Review, 73*(6), 786-796. doi: 10.1111/puar.12109

Thompson, A. G. H. (2007). The meaning of patient involvement and participation in health care consultation: a taxonomy. *Social Science and Medicine, 64*(6), 1297-1310.

Verschuere, B., Brandsen, T., & Pestoff, V. (2012). Co-production: The State of the Art in Research and the Future Agenda. *Voluntas, 23*(4), 1083-1101. doi: 10.1007/s11266-012-9307-8

Wilson, P. M., Kendall, S., & Brooks, F. (2007). The Expert Patients Programme: a paradox of patient empowerment and medical dominance. *Health & social care in the community, 15*(5), 426-438. doi: 10.1111/j.1365-2524.2007.00701.x